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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/637,520 | 08/10/2000 | Thomas Michael Walley | 10001892-1 | 7579 |

22878 7590 05/09/2003

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| EXAMINER |
|---|
| KIBLER, VIRGINIA M |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2623 | 3 |

DATE MAILED: 05/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/637,520 | WALLEY ET AL. | |
| | Examiner | Art Unit | |
| | Virginia M Kibler | 2623 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 August 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 3, 4, 10-12, and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 3 and 4 recite the limitation "the navigation array" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claims 10-12 recite the limitation "the NSA" in line 2 (Claims 10 and 12) and in line 3 (Claim 11). There is insufficient antecedent basis for this limitation in the claim.

Claim 16 recites the limitation "the navigation engine" in line 4. There is insufficient antecedent basis for this limitation in the claim.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 3, 5, and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Upton (6,052,475).

Regarding claim 1, Upton discloses a fingerprint imager for capturing an image of a fingerprint including a single sensor integrated circuit (Col. 3, lines 50-54) having an imaging array with a plurality of sensors 20 (Col. 4, lines 4-7) arranged along a first axis (Figure 1) for capturing a sub-image of the fingerprint at one time; wherein the fingerprint is moved with respect to the first axis (Col. 3, lines 50-54); and a mechanism for determining a change in the position of the fingerprint with respect to time (Col. 4, lines 7-9).

Regarding claim 3, Upton discloses the imaging array and the navigation array sharing sensors (Col. 4, lines 7-9).

Regarding claim 5, Upton discloses the plurality of sensors as resistive-type sensors (Col. 4, lines 4-7).

Regarding claim 9, Upton discloses the fingerprint imager including a surface along which a finger is moved and wherein the surface is a physical surface 22 (Figure 1).

5. Claim 20 is rejected under 35 U.S.C. 102(e) as being anticipated by Kramer et al. (6,317,508).

Regarding claim 20, Kramer et al. ("Kramer") discloses a method of imaging an object by using a single sensor chip having an integrated navigation engine comprising capturing movement information of an object by using a navigation sensor array and the navigation engine (Col. 2, lines 24-27), based on the movement information (Col. 2, lines 68-65), determining when to capture a sub-image of the object by using an image sensor array having a plurality of pixels for imaging the portion of the object at one time (Col. 2, lines 43-57), successively

capturing a plurality of sub-images by using an imaging sensor array as the object moves with respect to the imaging array (Col. 3, lines 6-8) and generating a composite image of the object based on the captured portions of the object by using a processor-based application (Col. 3, lines 8-14). Kramer discloses the single chip integrated with the navigation engine and sensor array (Col. 2, lines 24-27).

### *Claim Rejections - 35 USC § 103*

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 2 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Upton (6,052,475) as applied to claim 1 above, and further in view of Jensen (4,784,484).

Regarding claim 2, Upton discloses a navigation array having a plurality of sensors for capturing navigation images of portion of the fingerprint as the fingerprint moves with respect to the navigation array (Col. 4, lines 7-9). Upton discloses determining the amount of movement of a fingerprint generally along the first axis and along a second axis perpendicular to the first., but does not appear to explicitly state a navigation circuit, coupled to the navigation array, for controlling when the navigation array captures navigation images and for receiving the navigation images. However, Jensen teaches that it is known to use the rate of movement to synchronize the scanning (Col. 1, lines 60-65), thereby controlling when the navigation array

captures navigation images and for receiving the navigation images. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the navigation array disclosed by Upton to include specifying a navigation circuit, as taught by Jensen, in order synchronize the scanning with the rate of movement.

Regarding claim 18, Upton discloses the navigation array as a 2 x 5 sensor array (Col. 4, lines 4-12).

8. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Upton (6,052,475) as applied to claim 1 above, and further in view of Brownlee (6,282,303).

Regarding claim 6, Upton does not recognize a stand-alone unit including optics. However, Brownlee teaches that it is known to include a fingerprint imager implemented in a stand-alone unit 910 in Figure 9 (Col. 2, lines 28-29) including optics for focusing light onto the surface (Abstract, lines 3-5) and an optics assembly 211 for housing the optics (Figure 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the fingerprint imager disclosed by Upton to a stand-alone unit including optics, as taught by Brownlee, as a design choice.

Regarding claim 7, the arguments analogous to those presented above in claim 6 are applicable to claim 7. Note, Brownlee discloses the fingerprint imager implemented in a PC peripheral (Figure 9).

Regarding claim 8, Brownlee discloses the PC peripheral device as a mouse, thereby a cursor pointing device (Figure 9).

9. Claims 4, 10-14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Upton (6,052,475) as applied to claim 1 above, and further in view of Akizuki (6,360,004).

Regarding claim 10, Upton discloses the image sensor and the navigation sensor as the same sensor. However, Akizuki teaches that it is known to have two separate sensors for the imaging and navigation (Abstract, lines 1-4). Akizuki does not specify using different pixel sizes for each sensor. However, in light of Akizuki's disclosure it would have been obvious to choose different pixel sizes as a design parameter. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the sensor disclosed by Upton for both imaging and navigation to use two separate sensors, as taught by Akizuki, as a design parameter.

Regarding claim 11, Akizuki discloses the sensors having pixel size of 50 microns (Col. 2, lines 62-67). Akizuki does not disclose using different pixel sizes for both sensors. However, in light of Akizuki's disclosure it would have been obvious to one of ordinary skill in the art at the time of the invention to have specified using different pixel sizes for the two sensors as a design parameter.

Regarding claim 12, Akizuki discloses the resolution of the sensors being about 500 dots/inch (Col. 2, lines 65-67).

Regarding claim 13, Akizuki discloses a touch pad, or a stand-alone unit, wherein the fingerprint imager further comprises a capacitive sensor (Col. 2, lines 62-67) having a surface along which a finger is moved 4 and an assembly for housing the capacitive sensor (Col. 2, lines 17-20).

Regarding claim 14, the arguments analogous to those presented above for claim 13 are applicable to claim 14. Note, Akizuki discloses a touch pad, thereby a PC peripheral.

Regarding claim 4, Akizuki discloses the imaging array separate from the navigation array (Abstract, lines 1-4).

Regarding claim 16, Akizuki discloses a processor 5 (Figure 1) and a cursor control software which when executing on the processor receives the movement information from the navigation engine and uses the movement information to control the cursor (Col. 3, lines 47-51).

10. Claims 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Upton (6,052,475) as applied to claim 1 above, and further in view of Tschudi (WO 98/58342).

Regarding claim 17, Upton discloses the imaging array as a 2 x N sensor array. However, Tschudi teaches that it is known to use a 1 x N sensor array as shown in Figure 1a (Page 3, lines 28-34). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the imaging array disclosed by Upton to a 1 x N sensor array, as taught by Tschudi, in order to save space.

Regarding claim 15, Upton discloses a processor 40 (Figure 1), a composite image generation software which when executing on the processor receives the sub-images (Col. 2, lines 48-55) and the movement information (Col. 2, lines 6-55-57) for each sub-image relative to a previous sub-image and based thereon generates a composite image of the fingerprint (Col. 2, lines 57-59). Upton further discloses using fingerprint verification to grant access to a resource (Col. 1, lines 16-20) and using identification software which when executing on the processor receives the composite image, analyzes it to generate minutia and compares the generated minutia to previously stored minutia to execute verification (Col. 2, lines 59-62) Upton does not seem to recognize using an imaging array strobe generator. However, Tschudi teaches that it is known to use an imaging array strobe generator for employing the change in position to

selectively control when the imaging array captures the sub-images (Page 5, lines 19-35). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the control for imaging disclosed by Upton to include an imaging array strobe generator, as taught by Tschudi, in order to obtain at least one measurement of each portion of the fingerprint.

11. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Akizuki (6,360,004) in view of Kramer et al. (6,317,508).

Regarding claim 19, Akizuki discloses an imager including a surface having an axis 4 wherein the object is moved in a first direction relative to the axis of the surface, a fingerprint sensor, or an imaging sensor array, having a plurality of sensors arranged along a first axis (Col. 2, lines 62-67) for imaging a portion of the fingerprint at one time in response to an asserted imaging sensor array strobe signal (Col. 3, lines 23-33), a position sensor, or navigation sensor array, having a plurality of sensors (Col. 2, lines 62-67) for obtaining movement information of the object in response to an asserted navigation sensor array strobe signal (Col. 3, lines 23-33), and a navigation circuit 3, coupled to the navigation array, for receiving images and based thereon for determining the amount of movement of a finger in a first and second direction (Figure 1). Akizuki does not seem to recognize the sensors and the navigation circuit integrated on a single chip. However, Kramer et al. ("Kramer") teaches that it is known to provide it on a single integrated circuit (Col. 2, lines 21-27). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the imager disclosed by Akizuki to include specifying the use of a single chip, as taught by Kramer, as a design parameter.

***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Pat. No. 6,337,918 to Holehan for computer system with integratable touchpad/security subsystem;

U.S. Pat. No. 5,195,145 to Backus et al. for apparatus to record epidermal topography;

U.S. Pat. No. 6,333,989 to Borza for contact imaging device; and

U.S. Pat. No. 6,256,022 to Manaresi et al. for low-cost semiconductor user input device.

***Contact Information***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Virginia M Kibler whose telephone number is (703) 306-4072. The examiner can normally be reached on Mon. -Thurs. 8:00 - 5:30 and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703) 308-6604. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

VK
May 3, 2003

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